From arc5 at ix.netcom.com Thu Feb 4 14:38:34 2021
From: arc5 at ix.netcom.com (David Stinson)
Date: Thu, 4 Feb 2021 08:38:34 -0600
Subject: [BoatAnchors] W.E. Radio Compass Accessory
Message-ID: <25353e1e-deea-a128-c9ce-acf903ddfbfb@ix.netcom.com>

If anyone has one of these, or has ever seen
one, I'd be grateful to speak to you about it.
I have a W.E. Maritime Radiophone which is lonely.

https://photos.app.goo.gl/ZjTdTV4Sr5sJ1myJ8

Thanks,
Dave AB5S

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This email has been checked for viruses by Avast antivirus software.
https://www.avast.com/antivirus

From arc5 at ix.netcom.com Sun Feb 7 14:42:22 2021
From: arc5 at ix.netcom.com (David Stinson)
Date: Sun, 7 Feb 2021 08:42:22 -0600
Subject: [BoatAnchors] Proper MOV Ratings?
Message-ID: <52fe308a-a6ab-f77f-79eb-2f0df389172b@ix.netcom.com>

My "civilian" AM station transmitter is a
Viking II.? I'd like to install MOVs to protect
the transformers from surges.

My line voltage averages 120-122 VAC.
Are 130V MOVs OK, or should I order 150V?

Thanks,
Dave S.

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This email has been checked for viruses by Avast antivirus software.
https://www.avast.com/antivirus

From spr at earthlink.net Mon Feb 8 00:54:12 2021
From: spr at earthlink.net (Scott Robinson)
Date: Sun, 7 Feb 2021 16:54:12 -0800
Subject: [BoatAnchors] Proper MOV Ratings?

In-Reply-To: <52fe308a-a6ab-f77f-79eb-2f0df389172b@ix.netcom.com>
References: <52fe308a-a6ab-f77f-79eb-2f0df389172b@ix.netcom.com>
Message-ID: <9a90e522-b093-ce78-40c1-2c909540427e@earthlink.net>

I'd choose 159V, bearing in mind that small surges won't fry your gear, and that the voltage rating has tolerances, so I'd worry about the lowest voltage the tolerance allows. Frequent limiting uses them up.

/scott robinson

On 2/7/21 6:42 AM, David Stinson via BoatAnchors wrote:
> My "civilian" AM station transmitter is a
> Viking II.? I'd like to install MOVs to protect
> the transformers from surges.
>
> My line voltage averages 120-122 VAC.
> Are 130V MOVs OK, or should I order 150V?
>
> Thanks,
> Dave S.
>
>
>

From nbroline at austin.rr.com Mon Feb 8 15:43:04 2021
From: nbroline at austin.rr.com (Nick Broline)
Date: Mon, 8 Feb 2021 09:43:04 -0600
Subject: [BoatAnchors] MOV Selection
In-Reply-To: <mailman.5.1612785602.9931.boatanchors@lists.theporch.com>
References: <mailman.5.1612785602.9931.boatanchors@lists.theporch.com>
Message-ID: <7A57EEC03DB341159C392B60394F4332@DualAMD64>

Dave,
This is a long treatment of what you are asking for in your MOV selection. Depending on how your MOV manufacturer specifies the device, it may not be what you want.

Your 122V power system has a peak voltage of 1.4 x the rms value (122V)l, or 173V. This peak voltage should be the voltage used in selecting the MOV. One with a lower rating would mean it would be attempting to conduct on the peak of every half cycle.

Looking at an offering from the Mouser catalog for the Bourns MOV products I see they have provided application assistance by specifying the RMS voltage design center, the DC hold-off voltage, then more data that gives us insight as to how they turn on, or start conducting, and how hefty it is.

Their line for part number

MOV-20D201K is called a 130V rms MOV that can operate across a 170V dc source without drawing significant current.
Continuing down the listing, they specify the voltage at which it will draw 1 ma: 185V min, 200V nominal, and 225V max. Now we can see these are not precision voltage devices, so we need to select one with some "elbow room" at the top voltage. They do no go to full conduction at the threshold voltage, either. They turn on gradually Increasing the voltage just causes them to draw incrementally larger currents, and the voltage across them also rises. Note that the lowest threshold voltage at 1 ma. is comfortably below your peak line voltage.

MOV's are not anything like back-to-back Zener diodes, which will have sharp knees at turn on. They would certainly try to clamp a transient at their rated voltage.....once......unless one uses very large honkin' diodes. For a transient like a lightning strike somewhere distant from the protected product they would clamp the transient once, then possibly be destroyed by the peak energy they are subjected to. Most likely they would short, and that would blow the fuse.

MOV's are designed to take such transient "on the chin" and continue protecting without destroying themselves.....but they are limited in the number of times they can do that, and that is normally not a problem. A good way to think of them is their ability to absorb a relatively large amount of energy instantaneously and will draw a very high peak current (6500 A in this part number) for a few microseconds in the process. This makes them a good and cheap circuit protector that knocks off the sharp edges of transient waveforms.

The product I used as an example is about 1" in diameter and is a fairly typical size. It looks like it would be a suitable selection for your needs.
73
Nick Broline W5FUA
512 327 7425

We shall not cease from exploring
And at the end of exploring
Will be to arrive where we started
And know the place for the first time.
    T.S. Eliot--"Little Gidding"

From gumbear at pacbell.net Mon Feb 8 17:13:30 2021
From: gumbear at pacbell.net (Arden Allen)
Date: Mon, 8 Feb 2021 09:13:30 -0800
Subject: [BoatAnchors] MOV Selection
In-Reply-To: <7A57EEC03DB341159C392B60394F4332@DualAMD64>
References: <mailman.5.1612785602.9931.boatanchors@lists.theporch.com>
 <7A57EEC03DB341159C392B60394F4332@DualAMD64>

Message-ID: <6985CC46967342FD9C27E3FD23981C19@Lenovo>

Nick, thank you for the detailed information on the practical application of MOV's. Just to add one point: A huge rise in line voltage that can degrade or destroy a MOV is a very rare event. A lightning strike that could do that is likely to cause other serious damage to premises and equipment. The gradual onset of conduction with voltage rise is the main benefit of MOV's because they not only absorb the energy from noise producing switch and contactor spikes they dampen line ringing that would be caused by sharp turn on devices, thus they reduce radio noise.

Arden

-----Original Message-----
From: Nick Broline
Sent: Monday, February 08, 2021 7:43 AM
To: boatanchors at lists.theporch.com
Subject: [BoatAnchors] MOV Selection

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T.S. Eliot--"Little Gidding"

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BoatAnchors mailing list
BoatAnchors at lists.theporch.com
https://lists.theporch.com/mailman/listinfo/boatanchors

From arc5 at ix.netcom.com Wed Feb 10 16:50:57 2021
From: arc5 at ix.netcom.com (David Stinson)
Date: Wed, 10 Feb 2021 16:50:57 -0000
Subject: [BoatAnchors] Getting Old Suuuuuucks...
Message-ID: <e1f60565-82f1-9093-0dd3-b7321fabcb98@ix.netcom.com>

Guys, please let me be clear about something:
I want to help most of our community, when
I can.? But I'm old now and I'm SLOW.
Sometimes real slow.

And even worse- things fall out of my ears,
especially when work or just "life" is pulling
my hair in seven different directions.
Sometimes, I seem to keep up OK.

Others... not so much...
I swear I remember my name because
Kay marks it on my shirt tags so I'll see it.
Waiting for the day I have to call her and
ask where we live.

For instance:
There's a box sitting next to my desk on
the table.? It's all packed and ready to
go.? It has been for days, while I struggle
with what it was and for whom...
I remember someone needed something.
I have NO IDEA what it is or who needed it.
I think his name started with "S"...
You'd think by now I'd remember to write
everything on the package.?? Distractions
at just the right moment prove there are
malicious gremlins who see to the timing.
It's embarrassing to admit.? I'm going to
have to open it, whereupon I'll likely say:
"Oh YEAH!"

So if I'm supposed to send you something,
and you don't hear from me for awhile,
I will not be offended if you (politely)
ask about it.? In fact, I will take it as a favour.

GL OM ES 73 DE Dave AB5S

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https://www.avast.com/antivirus